

### Abstract of the Invention

A dependability measurement system for use in a communications network for providing dependability parameters and dependability metrics is provided. The 5 dependability measurement system is comprised of several functional components which work together to measure, analyze and report the dependability parameters and metrics. A performance measurement function measures performance parameters between a first location and a 10 second location in a communications network. A service-affecting event computation function analyzes performance parameters measured by the performance measurement function. An equipment event measurement function monitors network elements of the communications network for the 15 occurrence of network element events. A population calculator determines components within the communications network which are related to the dependability metrics to be reported upon and calculates in-service time information for the components. Finally, a dependability metric 20 calculator calculates, analyzes and reports the user requested dependability parameters and metrics using information output from the service-affecting event computation function, equipment event measurement function and population calculator.